UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 March 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-41</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-22, 24-34 and 36-41</u> is/are rejected.

7)☒ Claim(s) <u>23 and 35</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>08/09/2006</u>.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-14, 17-22, 24-34 and 36-41 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Bernzott et al (U.S. Patent 6,038,342), and further in view Nicholson et

al (U.S. Patent 6,661,919).

With regard to claim 1, Bernzott discloses obtaining an image of a page having

text therein (refer to col. 4, lines 13-21);

comparing the measure of the text in the page image with a measure derived

from the page image itself (refer to col. 4, lines 30-34); and

determining the legibility of the text in the page image based on the comparison

of the text and page image measures (refer to col. 2, lines 39-44). While Bernzott

disclose text recognition on text in the page image, Bernzott does not explicitly call for

producing a measure of the text. However, at the same field of endeavor, Nicholson

discloses this feature (refer to col. 3, lines 8-12). At the time of the invention, it would

have been obvious to a person of ordinary skill in the art to incorporate the teaching

Nicholson text image recognition and text image measuring system into Bernzott system.

The suggestion/motivation for doing so would have been to provide a character image

measuring to determine the height and width of the character image (refer to col. 15, lines

9-19 of Nicholson). Therefore, it would have been obvious to combine Nicholson with

Bernzott to obtain the invention as specified in claim 1.

With regard to claim 2, Bernzott discloses wherein performing text recognition

comprises identifying a spatial dimension of the text in the page image (refer to Figs. 3A

and 3B).

3.

With regard to claim 3, Bernzott discloses wherein the measure of the text in the

page image is a measure of text height in the identified spatial dimension, and the

measure derived from the page image is a measure of page image height in the same

spatial dimension (refer to col. 6, lines 10-16).

With regard to claim 4, Bernzott discloses wherein comparing the measure of

text height to page image height includes dividing the text height by the page image

height to produce a text-to-page height ratio (refer to col. 15, lines 34-39).

With regard to claim 5, Bernzott wherein determining the legibility of the text

includes comparing the text-to-page height ratio to a threshold (refer to col. 15, lines 55-

67).

With regard to claim 6, Bernzott discloses wherein the text is determined to be not

legible if

the text-to-page height ratio does not satisfy the threshold (refer to col. 16, lines 27-34).

With regard to claim 7, Bernzott discloses wherein text recognition is performed

on text in

multiple lines in the page image and each of the multiple lines of text produces a text-to-

page height ratio, wherein each of the multiple text-to-page height ratios are compared to

the threshold, and the legibility of the text in the page image is determined based on a

percentage of the text-to-page height ratios that satisfy the threshold (refer to col. 16,

lines 35-50).

With regard to claim 8, Bernzott discloses wherein the threshold is a first

threshold, the

method further comprising comparing the text-to-page height ratio to a second threshold

if the text-to-page height ratio satisfies the first threshold (refer to col. 16, lines 59-67).

Claims 9 and 10 are similarly analyzed and rejected the same as claim 8.

Claim 11 is similarly analyzed and rejected the same as claim 7.

With regard to claim 12, Bernzott discloses further comprising storing the page

image for display if the text in the page image is determined to be legible (refer to col. 2,

lines 11-19).

With regard to claim 13, Bernzott discloses wherein if the text in the page image

is determined to be not legible, a higher resolution image of the page is obtained (refer to

Figs. 3A and 3B).

With regard to claim 14, Bernzott discloses wherein performing text recognition

includes identifying and counting words that comprise the text in the page image, and

wherein producing a measure of the text includes calculating a measure of word density

in the page image based on the number of words in the page image and the spatial size of

the page image (refer to col. 5, lines 6-17).

Claim 17 is similarly analyzed and rejected the same as claims 1 and 12.

With regard to claim 18, Bernzott discloses wherein the base resolution page

image is obtained from an original high resolution image of the page, and if the text in the

base resolution page image is determined to be not legible, then the new page image is

obtained from the original high resolution page image at a resolution higher than the base

resolution (refer to col. 5, lines 8-20).

Claim 19 is similarly analyzed and rejected the same as claim 1.

Claim 20 is similarly analyzed and rejected the same as claim 3.

Claim 21 is similarly analyzed and rejected the same as claim 7.

With regard to claim 22, Bernzott discloses wherein text recognition is

performed on multiple lines of text in the page image (refer to Figs. 3A and 3B).

Claim 24 is similarly analyzed and rejected the same as claims 1 and 12.

Claim 25-28 and 32 are similarly analyzed and rejected the same as claim 12.

Claims 29-31 are similarly analyzed and rejected the same as claims 13.

Claims 33 and 34 are similarly analyzed and rejected the same as claims 13 and

14.

Claims 36, 37 and 39-41 are similarly analyzed and rejected the same as claim

12.

Claim 38 is similarly analyzed and rejected the same as claims 12 and 13.

2.   Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Bernzott et al (U.S. Patent 6,038,342) and Nicholson et al (U.S. Patent 6,661,919), and

further in view Reichek et al (U.S. Patent 5,960,448).

With regard to claim 15, Bernzott and Nicholson fail to discloses compressing

the page image to form a compressed image file; and determining the file size of the

compressed image file. However, at the same field of endeavor, Reichek et al discloses

this feature (refer to col. 6, lines 63-67). At the time of the invention, it would have been

obvious to a person of ordinary skill in the art to incorporate the teaching Reichek image

compressing system into Bernzott and Nicholson system. The suggestion/motivation for

doing so would have been to provide a compressed character image data (refer to col. 6,

lines 59-67 of Reichek). Therefore, it would have been obvious to combine Reichek with

Nicholson and Bernzott to obtain the invention as specified in claim 15.

With regard to claim 16, Bernzott discloses wherein determining the legibility of

the text includes comparing the measure of word density to the file size of the

compressed image file (refer to col. 6, lines 63-67).

Claim Rejections - 35 USC § 101

3.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent
Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV,
reads as follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional
> descriptive material." In this context, "functional descriptive material" consists of data structures and
> computer programs which impart functionality when employed as a computer component. (The
> definition of "data structure" is "a physical or logical relationship among data elements, designed to
> support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and
> Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited
> to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium

it becomes structurally and functionally interrelated to the medium and will be

statutory in most cases since use of technology permits the function of the descriptive

material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d

1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable

medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d

at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure

stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d

at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer

program is a computer element which defines structural and functional

interrelationships between the computer program and the rest of the computer which

permit the computer program's functionality to be realized, and is thus statutory. See

Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claims 29-31 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter as follows. Claim 29 defines a "a computer-

implemented system configured to determine the legibility of text in an image of a page,

comprising a processor programmed…" embodying functional descriptive material.

However, the claim does not define a computer-readable medium or memory and is thus

non-statutory for that reason (i.e., "When functional descriptive material is recorded on

some computer-readable medium it becomes structurally and functionally interrelated to

the medium and will be statutory in most cases since use of technology permits the

function of the descriptive material to be realized" – Guidelines Annex IV). That is, the

scope of the presently claimed "a computer-implemented system configured to

determine the legibility of text in an image of a page, comprising a processor

programmed...." can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on "computer-readable medium..." or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Allowable Subject Matter

4.   Claims 23 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Other Prior Art Cited

5.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent No. (5014327), (4944022), (4994987) and (4850026).

Conclusion

6.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOSEF KASSA whose telephone number is (571) 272-7452. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on (571) 272-7401. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300 for regular communication and (571) 273-8300 for after Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

12/10/2007.

YOSEF KASSA
PRIMARY EXAMINER